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The Quality of Analog Electronics Instructional Model Component Darlan Sidik Universitas Negeri Makassar, Faculty of Engineering, Daeng Tata Road, Parang Tambung, Makassar 90224, Indonesia Abstract: The primary concern of this research deals with the quality and effectivity of the instructional model that used by the Threeyear Diploma Analog Engineering students of Universitas Negeri Makassar.

The urge of analog electronics instructional model component aims to improve the learning quality, solve the low quality of education. The primary substance is the suitability construction of instructional model Analog Electronics course that fit the needs and learning conditions of Three-Year Diploma Analog Engineering students of Universitas Negeri Makassar.

The results of the research show that the component of learning strategies is very well, the content of learning materials is right, the element of learning tool is very well, and the component of achieved learning objectives is very high. The model construction evaluated through one-on-one trials, small group evaluation, and quality and effectivity evaluation of instructional model construction.

Keywords: Analog Electronics, Instructional Model 1. Introduction The need of instructional model component of analog electronics for the Three-Year Electronics Engineering students of State University of Makassar efforts to improve the quality of the learning process.

The energy needs the curriculum technology education and vocational, to develop competence, national character forming the dignified, and intellectual life of the nation as well as the achievement of the right to education for every citizen. Therefore,

mastering learning materials and instructional strategies become a part of the educators in organizing interactive, fun and challenging learning and provide space for creativity to create a qualified scholarship. The construction of learning considers some aspects.

Firstly, that teaching is a planned and intended conscious effort which activities undertaken by faculty and students be directed to achieve the learning objectives. Secondly, the learning process is scheduled led to creating learning atmosphere and should not ignore the projected learning process to make the learning objectives. Thirdly, the learning environment is designed well so that students can develop their potential and students also see them as the developing organism.

Moreover, the last, The learning process is the growing ability of students to have the knowledge and skills [1]–[3]. The basic concept of the learning model component based on the theory of teaching and learning. The idea of knowledge affects the application of learning activities. Each concept of education has become the central focus study; there is an emphasis on learning outcomes, it is an emphasis on organizational learning materials, it is also the importance of information systems in the learning process.

Therefore, learning models need to choose relevant learning processes used in the learning model. As for the reference to the concept of learning that is elected and effected on the construction model of learning, namely (a) Behaviorism (b) Cognitivism (c) Humanism (d) Constructivism e) Cybernetics.

Based on these learning theories and the concept of the construction of the learning model, no single method of learning is ideal for all conditions studied. The whole idea is interrelating to particular learning theory as an analogy and representation of the mutual [4]–[7]. What the implication synthesizes of component instructional model foundation theory is that each student concern with the used learning materials.

Thus, the effect of learning theory towards the instructional model components aims to support students' learning activity that is suited to their learning condition and learning objectives. Explains that the integrated learning component into the design of learning will result in (a) learning strategies, (b) the organization of the contents of learning materials (c) the availability of facilities for education, (d) the competence of teachers, and (e) students' characteristics [8].

Meanwhile, the necessary component needs of the instructional model are: (a) learning objectives, (b) the organization of the content of learning materials, (c) the presentation of the content of teaching materials, and (d) management of learning activities, and d) the characteristics of students. Thus, it is necessary to conduct an in-depth study and

integrated with the various components of appropriate learning models to achieve the learning objectives.

Therefore, the issue raised in this paper are (1) How is the quality of the components of the instructional model used in Three-Year Diploma students majoring Analog Electronics of State University of Makassar? (2) How is the effectiveness of the learning model components that used for learning in Three-Year Diploma students majoring Analog Electronics of the State University of Makassar? 2.

Method The subject of this study involves 32 students of Electrical Engineering Education batch 2015/2016 in the odd semester. This study is a literature study by reviewing references and theories relevant to the main problem. The results of reference research used as the basis of research used in the field.

Another instrument used is a set questionnaire that relates to research indicators analyzed by percentage. The Paper ID: ART20177618 DOI: 10.21275/ART20177618 196 analysis results described on each index based on the data collected. 3. Result and Discussion Based on the studies of the underlying theoretical learning model development, the model developed is the study of theory and practice of learning visualized from the approach into a conceptual model [9], [10].

The learning model generated is a linear procedural model, meaning that each component of the model has input and the result can be valued based on the indicators such as (1) the baseline characteristics of students with subcomponents: participation learning, the ability to ask, learning guides, analysis of student characteristics, and prior knowledge, (2) instructional design with subcomponents: general purpose, learning, learning analytics, specific learning objectives, learning strategies, learning materials, valuation, and (3) the results of the learning model with subcomponents: learning materials, teachers' guide and students' guide [11].

The use of components of the instructional model studied here is not a component of new models, but it is an adaptation of a model based on the concept of learning model developed. The effectiveness of the model lies in the results of instructional design, not based on the number of components of the model are long, although the plan stages up to the effects of instructional design no restrictions on the stages, this model used efficiently for classroom-based learning.

The effectiveness of this model lies in the use of procedures instructional model produced by the conditions and needs of real learning student majoring Electronics Engineering Education Diploma Three of the State University of Makassar. There are

similarities in construction model of learning, which is the conformance of model components which used as a whole in the development of learning prototype.

Thus, the results of the development of this model can use as the basis for improving the quality of the learning process. The model can build a better learning system because the results of research and development taken from the group of students based on their GPA. The model is used to the results of the formative evaluation of learning materials, and the results of a study of the underlying relevant or have much in common with the characteristics of students based on a learning model development taken place.

If there is further research to be done, is the responsibility of the advanced researchers who want to try to prove the findings contained in the model component of learning courses Analog Electronics. Implementation of the pilot prototype study has limitations as it only uses formative evaluation with a trial stage one-onone, small group testing, and field trials in the class mean. To obtain good results of experiments necessary to test a large group to study prototype has developed.

The effects of learning as learning model prototype need to be done further research in the form of investigation and development of innovative and research on the subject that is bigger and broader reach for the learning model produced can be the foundation for improving the quality of the learning process. Stages of research learning model implementing adaptation of some models and the model is not a new model.

Furthermore, the results of the development component of the learning model will be better if done in consultation with a broader group of students on a clump of electronic learning. The learning model can be done by involving independent evaluators and does not include the designer [12], [13]. Therefore, the results of the consultation that this stage is not an integral part of the research and design of Analog Electronic learning model 1 done today.

Weakness component learning model applies only to students who become the subject of the trial if the lesson plan to use the necessary adjustments based on the learning stages of learning conditions to obtain the quality of the learning process better. Results component to the learning model or learning strategy subcomponents learning objectives are the learning objectives set have excellent clarity in the implementation of teaching and learning materials are presented for learning.

Learning materials with content that contains a truth subcomponent learning competency in accordance with the needs of the curriculum, but the truth of the

contents of study material used still include limitations because of the content of study material used is a collection of textbooks that are packed in a single entity that does not pay attention to ease of learning students.

Learning tool with subcomponents classrooms and practice, as well as the library, showed that the lighting system in each room is excellent and the electrical system used to function well. Circulation of service tools and materials lab is by the program practicum for students. Lecturers with professional competence subcomponents have excellent ability in applying the runway field of study.

Pedagogical Competence result that the capacity of lecturers organizing and selecting learning resources, methods, and time is outstanding. Social competence results that the ability to communicate and get along is lacking active and mature very well and been able to put them in a healthy communication and polite in the lecture and outside the speech.

The results of student characteristics obtained from subcomponents of learning motivation and prior knowledge are that the motivation of student learning. The student motivation is very high based on the desire of students to always examine the contents of learning materials continuously, the ability of students to ask questions and record the lecture material in the learning process is very low, but in accepting responsibility in the case of lecturing the result is very high tuition.

Students' prior knowledge on the analysis of the equation, reading analog measuring instrument, understanding of symbols and tracking system electronic circuits, are in a right category. The learning concept of analog electronics based on the literature review found that the idea of instructional design based on (1) the system approach, (2) the system of each component, (3) model, and (4) the design characteristics.

The result of concept instructional design is: Initial research identified: the weakness of learning, behavior analysis inputs. Instructional design by identifying: learning objectives, learning analysis, learning strategies, learning materials, evaluation of learning formative. 4. Conclusions The quality and effectiveness of learning prototype Analog Electronics based on (1) the one-on-one trials by instructional design experts showed that the components in the study materials are, on qualitative indicators, sufficiently relevant to very relevant.

The result of individual tests with high GPA students on the explanation of the content in learning materials is not experiencing problems, While the low GPA students still need assistance dealing with the content of learning materials, (2) the learning prototype

based on the small group trial on high GPA students about the subcomponents of content appropriateness, language, layout, and graphics is very good, while the result obtained from the low GPA students is quite good, and (3) the effectiveness testing on the learning prototype is effective in achieving instructional model components for; learning objectives, introduction, presentation, and closing.

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